

(e) *Channel pairing.* In general, channels must be planned and assigned in base/mobile pairs that are separated by 30 MHz. However, until December 31, 2006, channels other than those listed in paragraphs (b)(1) and (c)(1), may be planned and assigned in base/mobile pairs having a different separation, where necessary because 30 MHz base/mobile pairing is precluded by the presence of one or more co-channel or adjacent channel TV/DTV broadcast stations.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 66654, Nov. 7, 2000; 66 FR 10635, 10636, Feb. 16, 2001; 67 FR 61005, Sept. 27, 2002; 67 FR 76700, Dec. 13, 2002]

§ 90.533 Transmitting sites near the U.S./Canada or U.S./Mexico border.

This section applies to each license to operate one or more public safety transmitters in the 764–776 MHz and 794–806 MHz bands, at a location or locations North of Line A (see § 90.7) or within 120 kilometers (75 miles) of the U.S.-Mexico border, until such time as agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, become effective governing border area non-broadcast use of these bands. Public safety licenses are granted subject to the following conditions:

(a) Public safety transmitters operating in the 764–776 MHz and 794–806 MHz bands must conform to the limitations on interference to Canadian television stations contained in agreement(s) between the United States and Canada for use of television channels in the border area.

(b) Public safety facilities must accept any interference that may be caused by operations of UHF television broadcast transmitters in Canada and Mexico.

(c) Conditions may be added during the term of the license, if required by the terms of international agreements between the government of the United States and the government of Canada or the government of the United States and the government of Mexico, as applicable, regarding non-broadcast use

of the 764–776 MHz and 794–806 MHz bands.

[43 FR 54791, Nov. 22, 1978, as amended at 67 FR 76700, Dec. 13, 2002]

§ 90.535 Modulation and spectrum usage efficiency requirements.

Transmitters designed to operate in 764–776 MHz and 794–806 MHz frequency bands must meet the following modulation standards:

(a) All transmitters in the 764–776 MHz and 794–806 MHz frequency bands must use digital modulation. Mobile and portable transmitters may have analog modulation capability only as a secondary mode in addition to its primary digital mode. Mobile and portable transmitters that only operate on the low power channels designated in §§ 90.531(b)(3), 90.531(b)(4), are exempt from this digital modulation requirement.

(b) Transmitters designed to operate in the narrowband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 4.8 kbps per 6.25 kHz of bandwidth.

(c) Transmitters designed to operate in the wideband segment using digital modulation must be capable of maintaining a minimum data (non-voice) rate of 384 kbps per 150 kHz of bandwidth.

(d) The following provisions apply to licensees operating in the channels designated in §§ 90.531(b)(5) or 90.531(b)(6).

(1) With the exception of licensees designated in paragraph (d)(2) of this section, after December 31, 2014, licensees may only operate in voice mode in these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

(2) Licensees authorized to operate systems in the voice mode on these channels from applications filed on or before December 31, 2014, may continue operating in voice mode on these channels (including modification applications of such licenses granted after December 31, 2014, for expansion or maintenance of such systems) at a voice efficiency of at least one voice path per 12.5 kHz of spectrum bandwidth until December 31, 2016.

(3) The licensees designated in paragraph (d)(2) of this section must, no

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later than January 31, 2017, file a declaration through the Universal Licensing System that they are operating these channels at a voice efficiency of at least one voice path per 6.25 kHz of spectrum bandwidth.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53645, Sept. 5, 2000; 65 FR 66655, Nov. 7, 2000; 67 FR 76701, Dec. 13, 2002; 70 FR 21673, Apr. 27, 2005]

§ 90.537 Trunking requirement.

(a) *General use channels.* All systems using six or more narrowband channels in the 764–776 MHz and 794–806 MHz frequency bands must be trunked systems, except for those described in paragraph (b) of this section.

(b) *Interoperability channels.* Trunking is permitted only on Interoperability channels specified in § 90.531(b)(1)(iii). Trunked use must be strictly on a secondary, non-interference basis to conventional operations. The licensee must monitor and immediately release these channels when they are needed for interoperability purposes.

[66 FR 10636, Feb. 16, 2001]

§ 90.539 Frequency stability.

Transmitters designed to operate in 764–776 MHz and 794–806 MHz frequency bands must meet the frequency stability requirements in this section.

(a) Mobile, portable and control transmitters must normally use automatic frequency control (AFC) to lock on to the base station signal.

(b) The frequency stability of base transmitters operating in the narrowband segment must be 100 parts per billion or better.

(c) The frequency stability of mobile, portable, and control transmitters operating in the narrowband segment must be 400 parts per billion or better when AFC is locked to the base station. When AFC is not locked to the base station, the frequency stability must be at least 1.0 ppm for 6.25 kHz, 1.5 ppm for 12.5 kHz (2 channel aggregate), and 2.5 ppm for 25 kHz (4 channel aggregate).

(d) The frequency stability of base transmitters operating in the wideband segment must be 1 part per million or better.

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(e) The frequency stability of mobile, portable and control transmitters operating in the wideband segment must be 1.25 parts per million or better when AFC is locked to a base station, and 5 parts per million or better when AFC is not locked.

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 53646, Sept. 5, 2000]

§ 90.541 Transmitting power limits.

The transmitting power of base, mobile, portable and control stations operating in the 764–776 MHz and 794–806 MHz frequency bands must not exceed the maximum limits in this section, and must also comply with any applicable effective radiated power limits in § 90.545.

(a) The transmitting power of base transmitters must not exceed the limits given in paragraphs (a), (b) and (c) of § 90.635.

(b) The transmitter output power of mobile and control transmitters must not exceed 30 Watts.

(c) The transmitter output power of portable (hand-held) transmitters must not exceed 3 Watts.

(d) Transmitters operating on the narrowband low power channels listed in §§ 90.531(b)(3), 90.531(b)(4), must not exceed 2 watts (ERP).

[63 FR 58651, Nov. 2, 1998, as amended at 65 FR 66655, Nov. 7, 2000]

§ 90.543 Emission limitations.

Transmitters designed to operate in 764 776 MHz and 794 806 MHz frequency bands must meet the emission limitations in this section.

(a) The adjacent channel power (ACP) requirements for transmitters designed for various channel sizes are shown in the following tables. Mobile station requirements apply to handheld, car mounted and control station units. The tables specify a value for the ACP as a function of the displacement from the channel center frequency and measurement bandwidth. In the following tables, “(s)” indicates a swept measurement may be used.